

REMARKS

In view of the following remarks, reconsideration of the rejections set forth in the Office Action of November 6, 2003 is respectfully requested.

Claims 8-25, including independent claims 8 and 17, are presently pending in this application. In the outstanding Office Action, the Examiner rejected claims 8-25 as being unpatentable over the Kimura reference (USP 6,106,353) in view of the Lee reference (USP 6,283,814). However, the Applicants respectfully submit that the Examiner is not properly considering at least one of the limitations recited in each of the claims. Therefore, for the reasons discussed below, it is respectfully submitted that claims 8-25 are clearly patentable over the prior art of record.

Independent claims 8 and 17 are both directed to methods that include the step of applying a preliminary tension force *having a magnitude in a range of 9.8 N to 490 N to each of four corners of an approximately rectangular shadow mask*. This preliminary tension force is applied in an outward direction aslant with respect to each side of the shadow mask.

In response to the Applicants arguments submitted with the Amendment filed on September 12, 2003, the Examiner asserted that the Applicants have failed “to establish the criticality of the claimed ranges of the preliminary tension force, no testing nor analysis that would not be obvious to one having ordinary skill in the art were performed to demonstrate the advantage or the criticality of the claimed range of preliminary tension force.” However, the basis for this statement is not clear.

In contrast to the Examiner’s assertion, the Applicants have clearly demonstrated that the claimed range for the preliminary tension force is a critical element of the invention. Specifically, the present application explains that by applying a preliminary tension force in an outward direction aslant with respect to each side of the shadow mask, any unevenness of the shadow mask which cannot be cancelled only through the application of a main tensioning force can be minimized or eliminated (see paragraph [0030] of the substitute specification; corresponding to page 14, lines 4-19 of the original specification). The present application further explains, however, that if the preliminary tension force is less than 9.8 N, then the beneficial effects of applying the preliminary tension force as explained above will not be achieved. Furthermore, if the preliminary tension force

is larger than 490N, then an undesirable distortion will occur in the shadow mask, which will counter-act the beneficial effects of applying the preliminary tension force (see paragraph [0032] spanning pages 9 and 10 of the substitute specification; corresponding to page 15, lines 10-16 of the original specification). There is no requirement that Applicants must draft a disclosure to include data or a detailed explanation of how they have reached their conclusions and developed their invention. Moreover, the above-referenced portions of the specification clearly indicate that the claimed range for the preliminary tension force is not merely arbitrary and baseless rhetoric, but is rather a critical element of the claimed invention. Thus, contrary to the Examiner's assertion on page 6 of the Office Action, it is submitted that the Applicants have *clearly* established the criticality of the claimed range for the preliminary tension force as recited in independent claims 8 and 17.

The Examiner acknowledges that the Kimura reference does not specifically disclose the application of a preliminary tension force in a range of 9.8 N to 490 N. However, the Examiner notes that the Kimura reference teaches that "wrinkles and sagging are removed from the shadow mask by sufficiently stretching the shadow mask one in the outward direction." By doing so, the Examiner appears to take the position that the term "sufficiently," as used in the Kimura reference, means that a force of at least 9.8 N is applied to the shadow mask during the stretching process. If so, there is absolutely no basis for this position. In fact, common sense would dictate that wrinkles and sagging can be removed from a shadow mask by applying a force significantly less than 9.8N, although such a force would not provide the benefits of the present invention, as explained in the present application. Furthermore, the Kimura reference clearly does not explain that any preliminary tension force should be capped at 490 N in order to prevent distortion, as also explained in the present application. Thus, although the Examiner asserts that, in view of the Kimura reference, it would have been obvious to one of ordinary skill in the art to apply sufficient tension force to stretch a shadow mask, the Kimura reference does not teach or even suggest the application of a preliminary tension force in a range of 9.8 N to 490 N, as recited in independent claims 8 and 17.

Finally, the Examiner notes that where the general conditions of a claim are disclosed in the prior art, it has been held that discovering the optimum or workable ranges involves only routine skill in the art. However, as explained to the Examiner in the arguments filed on September 12,

2003, there is a significant qualifier to that holding. Specifically, a parameter must first be recognized as a result-effective variable before a recited range can be characterized as based on only routine experimentation. See *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). The Applicants submit that the Kimura reference (and the other prior art of record) does not provide any evidence that a preliminary tension force is a result-effective variable, as explained below.

The Kimura reference merely teaches that a shadow mask should be sufficiently stretched to remove wrinkles and sagging before the application of a stretching tension force. However, the Kimura reference does not even contemplate that an amount of a preliminary tension force is significant. As evidence that the Kimura reference does not consider that a preliminary tension force level is significant, the Examiner's attention is directed to the manner in which the Kimura reference describes the initial stretching step as compared to the stretching tension step. Specifically, the Kimura reference explains that during a main stretching step, a "*tension force* is applied in the direction of the arrow a"(see column 5, lines 58-59). In contrast, however, the Kimura reference does not use the terms "force" or "tension force" in connection with the description of the initial stretching of the shadow mask to remove wrinkles and sagging (see, for example, column 5, lines 24-35 of the kimura reference). The fact that the Kimura reference does not even mention a force in connection with the description of the preliminary stretching step is indicative of the fact that the Kimura reference does not consider the application to a preliminary tension force to be a result-effective variable.

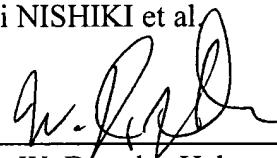
As explained above, the Kimura reference does not disclose or even suggest the application of a preliminary tension force in the critical claimed range of 9.8 N to 490 N. Furthermore, the Kimura reference does not provide any indication that the preliminary tension force is considered a result-effective variable such that obtaining the recited range would involve only routine experimentation. In addition, the Lee reference also does not disclose or even suggest the application of a preliminary tension force in the recited range. Therefore, it is submitted that one of ordinary skill in the art would clearly not be motivated by the Kimura reference and the Lee reference to obtain the present invention as recited in independent claims 8 and 17. Accordingly, it is respectfully

submitted that independent claims 8 and 17, and the claims that depend therefrom, are clearly patentable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. However, if the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the Applicant's undersigned representative.

Respectfully submitted,

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April 6, 2004